

FACT SHEET FOR NPDES PERMIT WA0038679

Lilyblad Petroleum

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of Chapter 90.48 Revised Code of Washington (RCW) which defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see [Appendix A--Public Involvement](#) of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant:	Lilyblad Petroleum Inc. P.O. Box 1556 Tacoma, Washington 98421-3607
Facility Name and Address:	Lilyblad Petroleum 2244 Port of Tacoma Road Tacoma, Washington 98421
Type of Facility:	Storage and distribution petroleum products, lubricating oils and greases
SIC Code:	5172—Petroleum Products, Nec; 5171—Petroleum Bulk Stations/Terminals; 2992—Lubricating Oils and Greases
Discharge Location:	Waterbody name: Blair Waterway via Lincoln Avenue Ditch Latitude: 47° 15' 53" N Longitude: 122° 23' 28" W
Water Body ID Number:	WA-10-0020

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

Lilyblad Petroleum Inc. (LPI) operates a 1.98 acre chemical and petroleum storage, blending and distribution facility in Tacoma, Washington. As shown in Figure 1, the facility consists of two tank farms, two loading areas, two covered areas for product blending, and a diesel cardlock island, product warehouses and offices. Process related wastewater discharged from the site are boiler blowdown and laboratory wastewater. However, the major discharge from the site is storm water. The site is generally level, and asphalt and concrete cover most of the outside areas.

HISTORY

The facility received its last NPDES permit on November 25, 1992. The permit authorized the discharge of treated storm water from the site. On June 27, 1996, the permit was modified to include the discharge of treated boiler blowdown. As required by the permit, the facility has developed a storm water pollution prevention plan (SWPPP) and a solid waste disposal plan.

INDUSTRIAL PROCESS

LPI receives, blends, reformulates, repackages, and distributes various chemicals and petroleum based lubricants and fuels for commercial and industrial customers. LPI sells a wide variety of industrial products. Some are received in packages and distributed as received; others are formulated specifically for customers' needs or repackaged to meet quantity requirements. Product category include:

- Lubricants – industrial and automotive
- Other petroleum based product such as transmission fluid and hydraulic fluid
- Industrial solvents (pure and blended); and thinner, which may be formulated by LPI for specific commercial uses, such as in the paints and coatings industry, metals fabrication and auto repair industry
- Chemicals and solvents (acetone, methylene chloride, etc) may be received in bulk and repackaged in smaller lots (totes, drums, or pails) for the customer without blending or formulation. In many instances, the package is received and resold without opening.
- Diesel fuel distribution tanks are controlled by a card lock system. The gasoline underground storage tank has been closed. There is currently no plan to reinstitute gasoline service.
- Bulk gasoline, diesel fuel, and bunker fuels are distributed to the customer. This involves pickup of the product at the supplier's bulk terminal, and delivery to the customer via LPI's transport trucks. These products do not enter the LPI site.

The facility has two tank farms (see Figure 2). The front tank farm (No. 1) contains more than a dozen tanks (between 20,000 to 25,000 gallons each) containing petroleum distillates, organic solvent and lube oil basestock. The back tank farm (No. 2) contains approximately two dozen tanks (between 4,000 to excess of 25,00 gallons each) containing lube oil, lubeoil basestock, recovered waste oil, and lube oil additives.

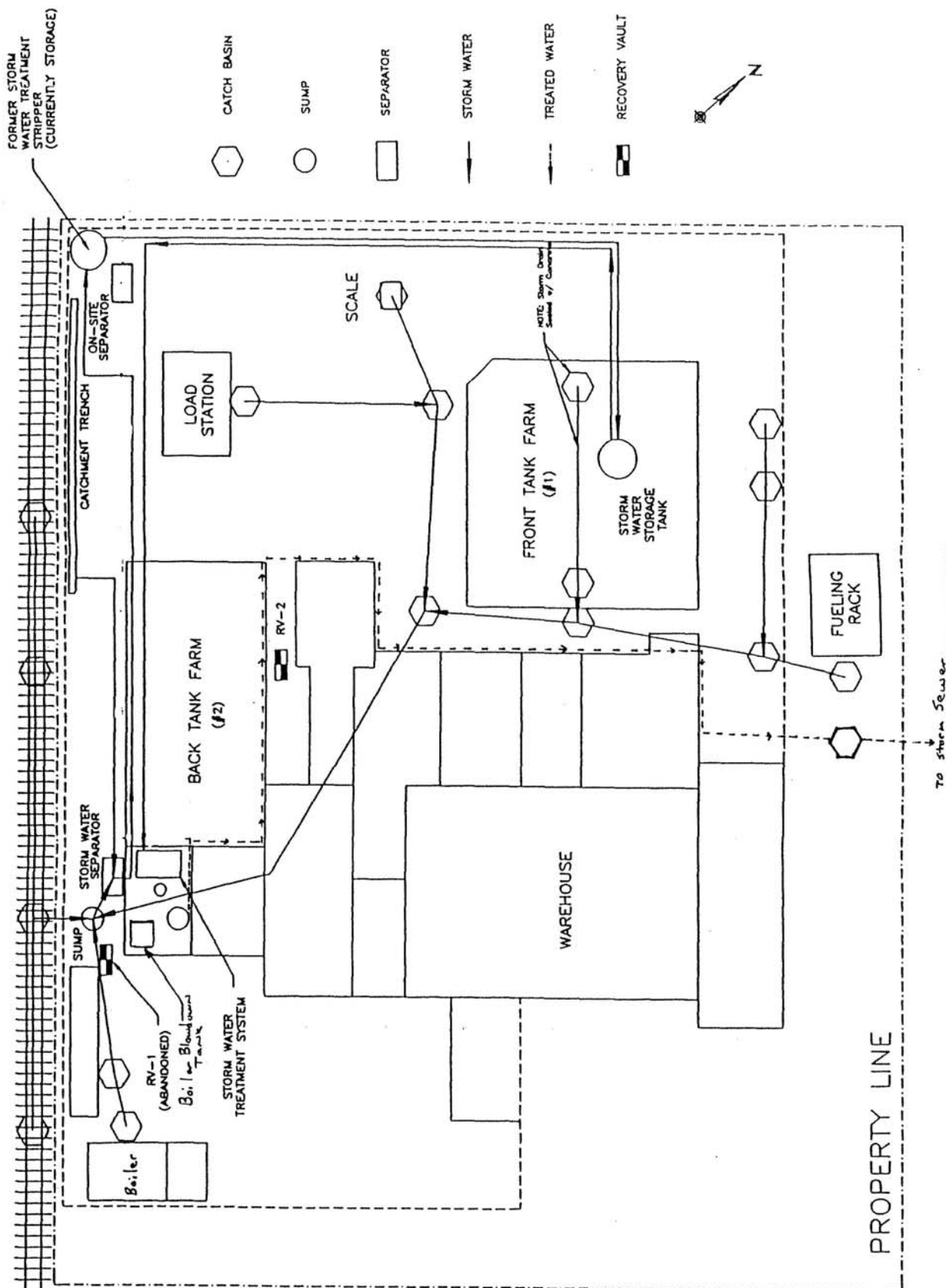


Figure 3. Facility layout

Discharge Outfall

LPI currently discharges treated storm water, treated boiler blowdown, and treated laboratory wastewater to the City storm drain located along the Port of Tacoma Road in front of the facility. The City storm drain empties into the Lincoln Avenue Ditch. The discharge into the Lincoln Avenue Ditch eventually flows into the Blair Waterway through a tide gate.

Roof drains (main office, warehouse, etc) are hard piped to the City of Tacoma municipal storm sewer on the north side of the site parallel to the Port of Tacoma Road. The parking lot and the front driveway also drain to the City storm drain.

PERMIT STATUS

The previous permit for this facility was issued on November 25, 1992. The previous permit placed effluent limitations on the following parameters. All the limitations except oil and grease are water quality based limitations. The oil and grease is a technology-based limitation.

Table 1: Effluent limitations in the previous permit issued, November 25, 1992

Parameter	Effluent Limitations (Daily Maximum)
Oil and Grease	15 mg/L
Copper	23.4 µg/L
Lead	118.5 µg/L
Zinc	150 µg/L
pH	6 to 9

An application for permit renewal was submitted to the Department on March 12, 1997. On December 17, 1997, the Department accepted the application as being substantially complete and notified LPI that their existing permit would continue to be in effect until June 30, 1999 or until further notice by the Department, whichever came first. A notice of the permit application was published in the Tacoma News Tribune on August 30, and again on September 6, 1998.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on January 23, 1996. A compliance inspection with sampling was conducted in December 1988, prior to the issuance of the previous permit. Figure 2 shows the compliance status of the facility with the various water quality (copper, zinc, lead and pH) and technology (oil and grease) based effluent limitations.

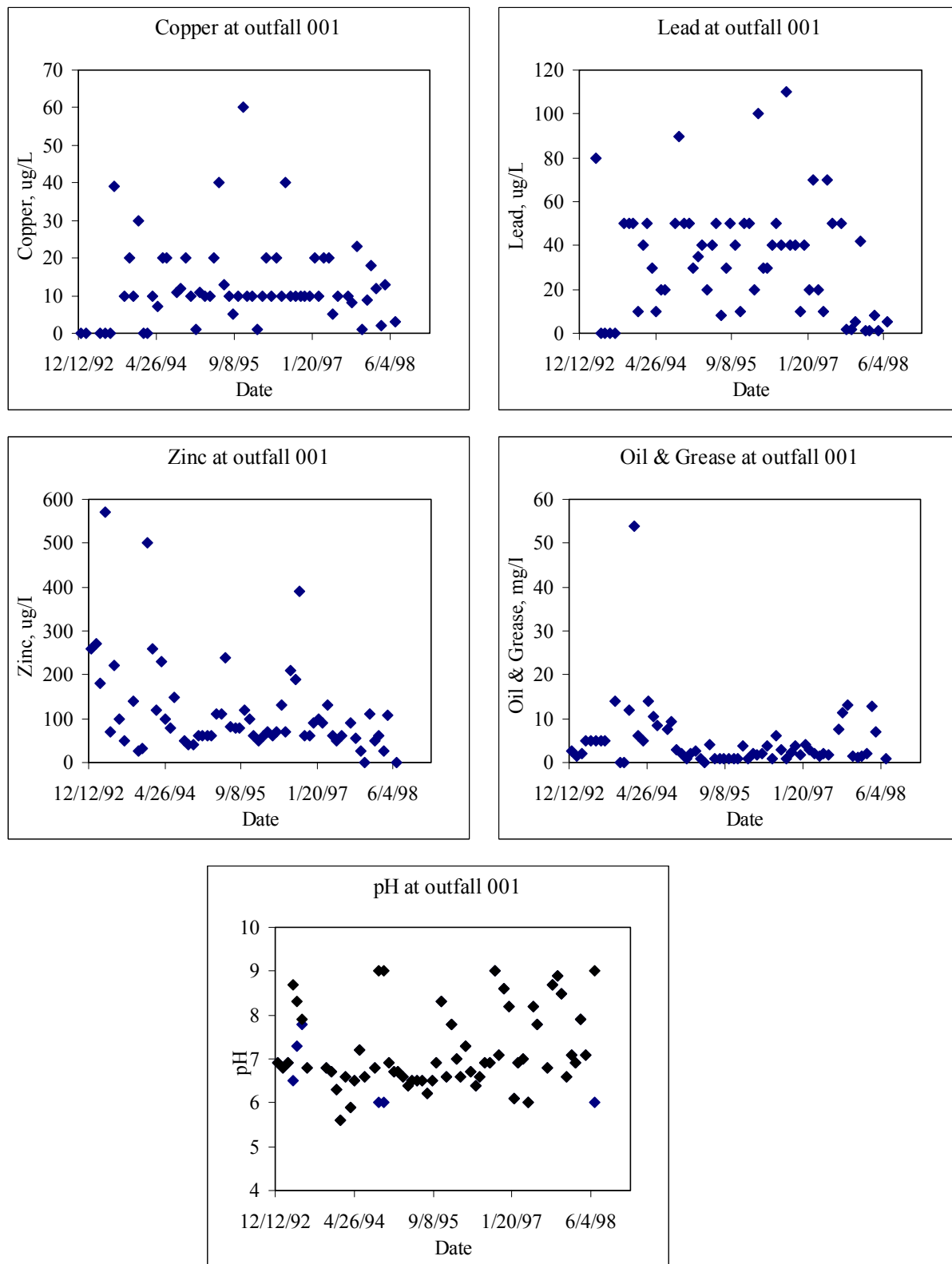


Figure 2. Concentration of permitted pollutants in the discharge.

Compliance with copper limit

The previous permit required an effluent limit of 23.4 µg/L for copper. During the term of the permit there were several excursions of the effluent limitation. The very first excursion of 390 µg/L in April 1993 is not shown in Figure 3 since this is more of an outlier. It should be noted that LPI began treating the storm water discharge via a vendor treatment system in 1993. Other excursions are listed below. Compliance with copper limit has been approximately 90 percent during the life of the previous permit. However, since September 1996, compliance has been 100 percent.

Date	Cu, ug/L
August, 1993	39
January 1994	30
June 1996	40
November 1995	60
August 1996	40

Compliance with lead limit

The previous permit required an effluent limit of 118.5 µg/L for lead. During the term of the permit there were no excursions of the effluent limitation.

Compliance with zinc limit

The previous permit required an effluent limit of 150 µg/L for zinc. During the term of the permit there were many excursions of the effluent limitation. However, no excursions were observed since November 1996.

Compliance with oil and grease limit

The previous permit required an effluent limit of 15 mg/L for oil & grease. During the term of the permit there was only one excursions (54 mg/L) of the effluent limitation in February 1994. Since then no excursions were observed.

Compliance with pH limit

The previous permit required an effluent limit of between six to nine on pH. During the term of the permit there were no excursions of the effluent limitation.

WASTEWATER CHARACTERIZATION

The proposed wastewater discharge is characterized for the following regulated parameters based on the last three years (since 1995) of “monthly discharge monitoring reports”:

Table 2: Wastewater Characterization (pollutants with effluent limits in the previous permit)

Parameter	Concentration				Effluent limit
	Mean	95 th percentile	Max	Min	
Oil & Grease, mg/L	3	11	13	<1	15
pH			9	6	6 to 9
Copper, µg/L	14	40	60	<1	23.4
Lead, µg/L	33	70	110	<1	118.5
Zinc, µg/L	90	210	390	<1	150

Concentration of other pollutants (data collected since 1995) in the discharge that were required to be monitored in the previous permit are shown below in Table 3.

Table 3: Wastewater Characterization (pollutants required to be monitored in the previous permit other than those listed in Table 1)

Parameter	Concentration			
	Mean	95 th percentile	Max	Min
Pentachlorophenol, µg/L	14	55	74	ND
Methylene Chloride, µg/L	10	24	150	ND
Acetone, µg/L	24	146	289	ND
1,1,1-trichloroethane, µg/L	1	2	8	ND
TOC (influent), mg/L	7	14	20	2
TOC (effluent), mg/L	3	11	14	1

On January 10, 1997, effluent sample was collected and analyzed for the purposes of completing the permit renewal application. Relevant pollutants are shown below.

Table 4: Wastewater Characterization (sample collected on January 10, 1997)

Parameter	Concentration
Pentachlorophenol, µg/L	<50
Methylene Chloride, µg/L	16
Acetone, µg/L	<10
1,1,1-trichloroethane, µg/L	<1
Oil & grease, mg/L	3.1
pH	8.7
Arsenic, µg/L	50
Copper, µg/L	10
Lead, µg/L	20
zinc, µg/L	10

Hardness of the receiving water (Lincoln Avenue Ditch)

Hardness of the receiving waterbody (Lincoln Avenue Ditch) was required to be monitored in the previous permit to establish if the presumed hardness used to determine the effluent limitations for metals was accurate.

The hardness of Lincoln Avenue Ditch was required to be monitored at the coffer dam (the previous point of discharge to the Lincoln Avenue Ditch), the tide gate (between Lincoln Avenue Ditch and the Blair Waterway), and midway between the coffer dam and the tide gate. The hardness was required to be monitored at low, mid and high tides at all these locations. Since 1997, the tide gate and midway locations could not be sampled since the City of Tacoma has constructed a culvert along these locations. Figure 3 shows the hardness data gathered during the previous permit cycle. The higher hardness concentrations shown in Figure 3 are generally indicative of values obtained from samples collected near the tide gate. Lower hardness values were obtained near the coffer dam and mid way between the coffer dam and the tide gate. The higher values at the tide gate are probably a result of some impact from marine water intrusion. Figure 4 shows that the hardness data follows a log-normal distribution. It should be pointed out that Ecology's Permit Writer's Manual (Ecology, 1994) recommends that a 10th percentile value of ambient hardness data (for more than 20 data points) be used in establishing the standards. However, due to the large variation in the hardness due to potential impact from salt water intrusion a 10th percentile seems unreasonable. The 50th percentile of the log-transformed data indicates that 50 percent of the data are at or below a hardness of 130 mg/L which is similar to the hardness of 134 mg/L chosen in the last permit cycle for establishing water quality standards for metals.

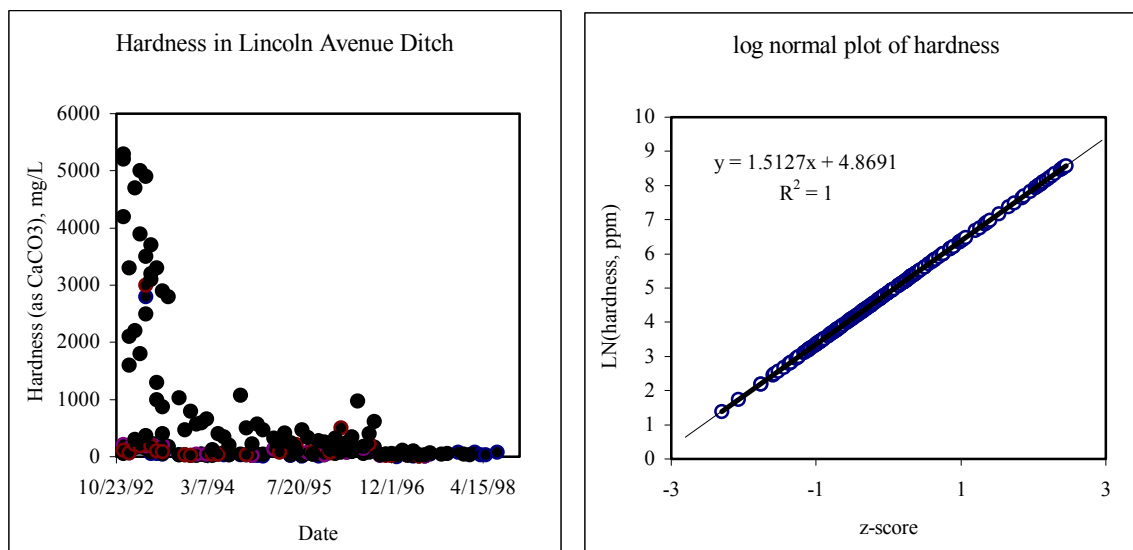


Figure 3. Hardness in the Lincoln Avenue Ditch. Figure 4: log-normal distribution of hardness data.

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in

this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

LPI installed a vendor-based treatment system in 1993 to treat the site storm water and boiler blowdown. This treatment system called the "Great Lakes Environmental Process Design" includes a slant rib coalescing separators that removes both oil and solids. Within the same body of the coalescer, the water is fed to two treatment sections. In the first section the pH of the water is adjusted and a coagulant is added to enhance solids separation. The system has been modified to add sodium sulfide to the water to aid in metals removal. The water is then gravity fed into the last tank where solids are removed. The water then travels to a sand/anthracite mixed media filter for further solids removal. The filter is backwashed automatically and the backwash water is sent through the system again. The filtered wastewater is then polished by a granulated activated carbon filters prior to discharging to the City of Tacoma storm drain for eventual discharge to the Lincoln Avenue Ditch.

METALS

The treatment system has been generally effective in reducing metals concentrations to below the water quality standards. The effluent concentrations of metals (Copper, lead and zinc) follows a log-normal distribution (see Figure 5). Thus, based on the performance of the treatment system, the following performance based limitations have been derived using the procedure of EPA (1991). It should be noted that for data below the detection level a random number was used between zero and the detection level.

Table 4: Performance based limits

	Zn	Cu	Pb	
Lognormal Transformed Mean =	4.18	2.24	2.89	
Lognormal Transformed Variance =		1.19	0.97	1.77
Number Of Samples/Month For Compliance Monitoring =	1	1	1	
Autocorrelation Factor (Use 0 If Unknown) =	0	0	0	
E(X) =	119	15	44	
V(X) =	32121	382	9258	
VARn =	1.19	0.34	0.80	
MEANn =	4.18	2.55	3.38	
VAR(Xn) =	32121	96	2315	
MAXIMUM DAILY EFFLUENT LIMIT =		827	93	397
AVERAGE MONTHLY EFFLUENT LIMIT =		393	34	127

These numbers are clearly higher than limits that are based upon the water quality standards (see section below on water quality based limitations) and as such are less restrictive. However, the mean performance of the treatment system represented by 'E (X)' indicates that on an average the effluent concentrations are below the water quality standards for copper, zinc and lead (see section below on water quality based limitations).

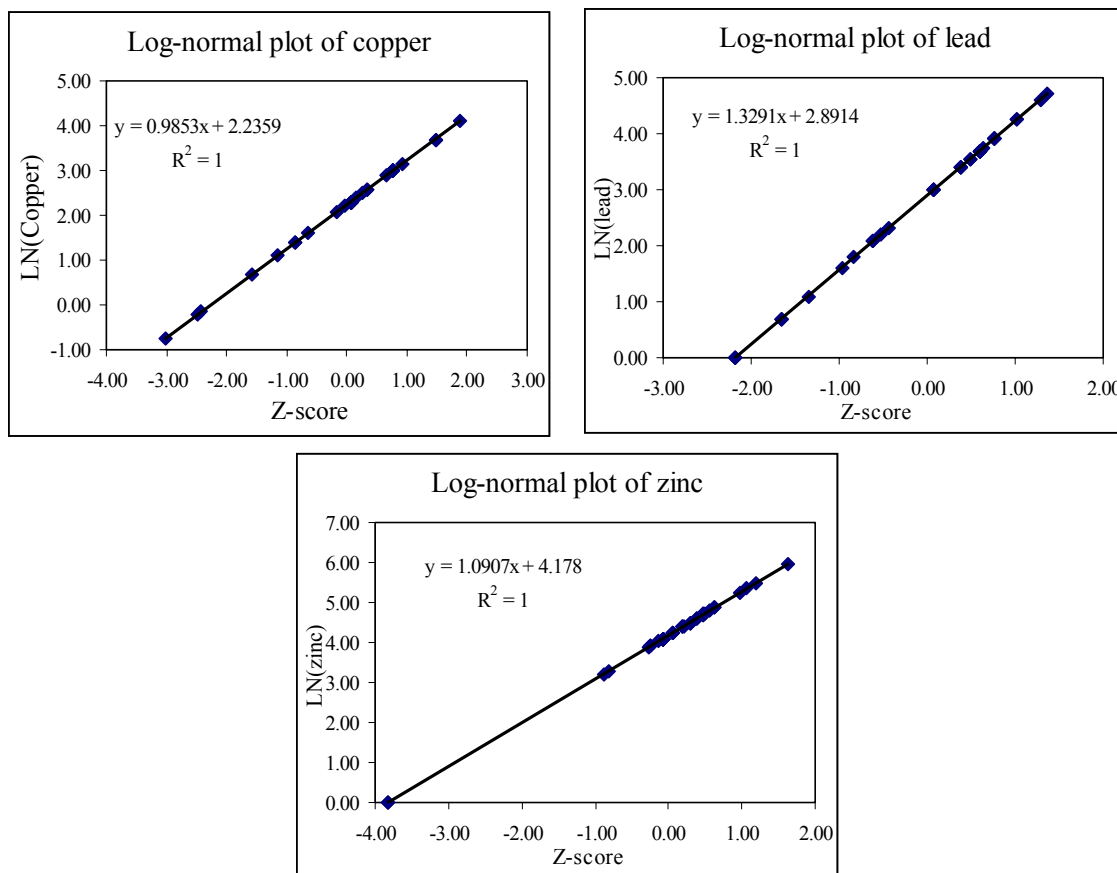


Figure 5: Log-normal plots for effluent metals concentrations

pH

The treatment system is deemed efficient in achieving the technology based pH limitation of six to nine.

OIL & GREASE

The treatment system is deemed efficient in achieving the technology based oil & grease limitation of 15 mg/L.

PENTACHLOROPHENOL (PCP)

Figure 6 shows the effluent pentachlorophenol concentrations during the last permit cycle. The graph shows that the PCP concentration has been increasing with time. The source of PCP was previously identified as groundwater seepage into the storm sewer. However, it is not clear if the increase in PCP is from increased loading from groundwater or decreased efficiency of the carbon column or both. It should be noted that the activated carbon column had been replaced only once (December 1997) in the last five years (Dennis Montgomery, Lilyblad Petroleum Inc., personal communication). If groundwater seepage is solely responsible for increased effluent concentrations, it may be minimized by visual inspection of the site storm sewers to determine the integrity of the sewers and the sewer joints and then completing the necessary repairs. Improved removal of PCP by activated carbon can be accomplished by frequent replacement of carbon

column. The frequency of replacement should be governed by attaining a certain percent removal of PCP beyond which cost becomes unreasonable and/or water quality standard (addressed later) or some technology-based limitation is compromised. Thus, when the effluent is 50 percent (or some other predetermined number) of influent PCP, the carbon should be replaced. The previous permit required the monitoring of total organic carbon (TOC) of both influent and effluent to the carbon column. However, no correlation was established between TOC removed and effluent PCP. Further monitoring for TOC will not be required.

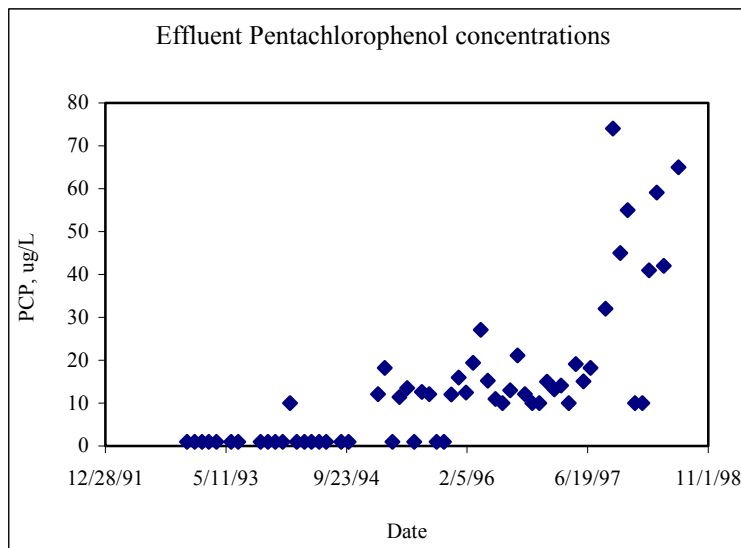


Figure 6: Effluent pentachlorophenol concentration

OTHER ORGANICS

The previous permit required the monitoring of acetone, methylene chloride and 1,1,1 trichloroethane. Again, no correlation was observed between the effluent concentration of these organics and TOC data gathered during the last permit cycle. Further monitoring for TOC will not be required. Figure 7 shows the effluent concentration of these organics during the past permit cycle.

Figure 7 shows that there are sporadic events when the concentrations of these organics are measurable at the outfall. Consistent application of “best management practices” (BMPs) should reduce/eliminate the discharge of these chemicals. Past practices in the last three years should be evaluated as it seems that relatively higher concentrations of acetone were observed in the last three years compared to the prior years. BMPs must be implemented to minimize the discharge of acetone. Acetone will be required to be monitored to evaluate the effectiveness of the BMPs.

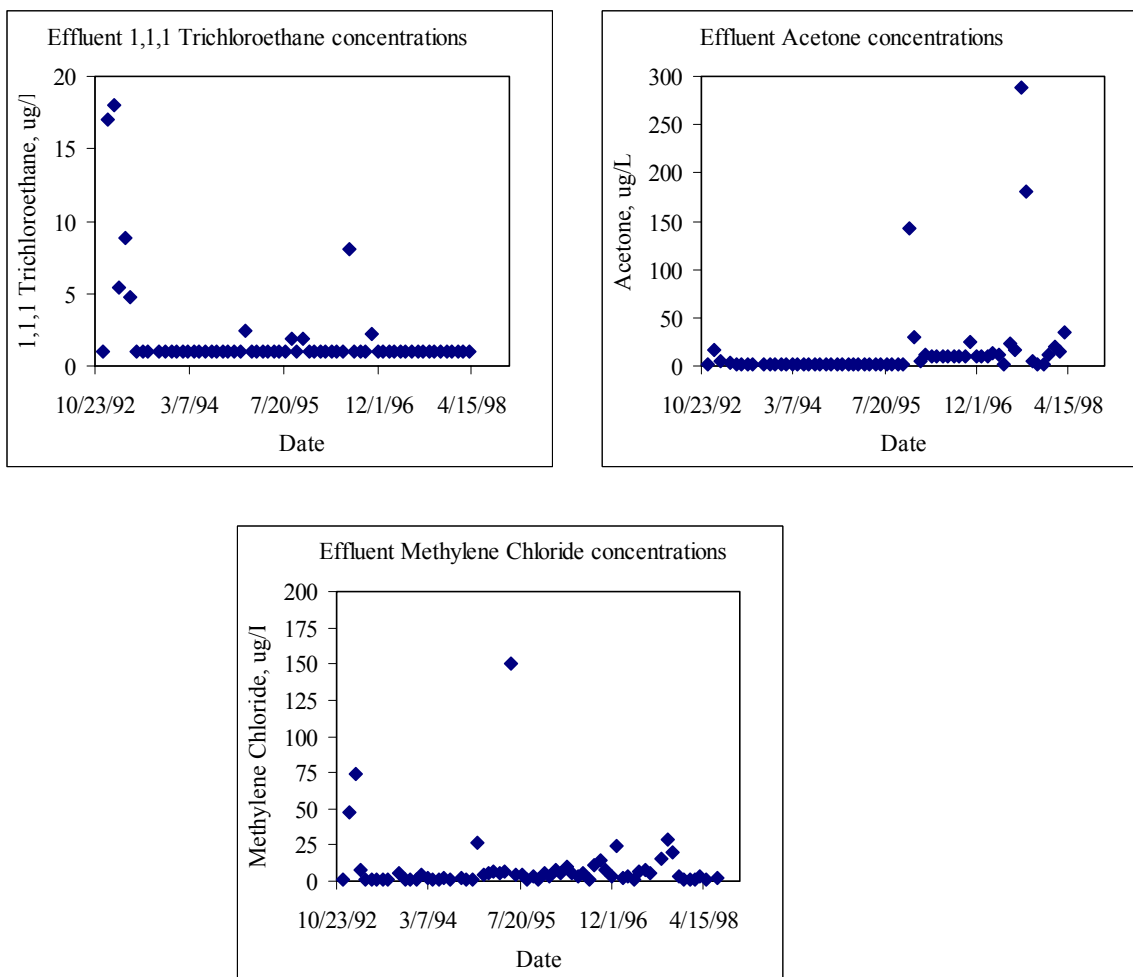


Figure 7: Effluent concentration of other organics.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state.

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100. The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Blair Waterway via Lincoln Avenue Ditch. The Blair Waterway has been designated as a Class B receiving water. Since Lincoln Avenue Ditch is an unclassified waterbody and it is not discharging to a Class AA waterbody, then by definition it will be designated as Class A waters of the state [see WAC 173-201A-120-(6)]. Characteristic uses include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992).

In the 1992 revision of the Washington Water Quality Standards (WAC 173-201A) the metals criteria were changed from being expressed as total recoverable to dissolved. The conversion was accomplished using the conversion factors (translators) recommended by EPA at the time. These conversion factors became part of the formula for calculating the criteria. In 1995, EPA also converted the national criteria for metals to a dissolved basis (FR Vol. 60, No. 86 p. 22228-22237). EPA used different conversion ratios than those used by the Department in 1992 which resulted in a different criteria from those found in WAC 173-201A. The Department has adopted the new national criteria into the water quality standards during the triennial review (WAC 173-201A as amended November 18, 1997).

It should be noted that the effluent limitations for metals in the previous permit was based on standards and formulations contained in Chapter 173-201 WAC. This Chapter has since been modified to Chapter 173-201A and contains new formulations and standards for certain metals based on USEPA recommendations. Table 6 below reflects the changes incorporated in Chapter 173-201A WAC. An ambient receiving water hardness of 134 was used in deriving the respective standards.

Due to the intermittent nature of the storm water discharge, together with the fact that the chronic toxicity standards for water quality are based on a four-day average, the acute standards are only used to establish effluent limitations. Only daily maximum limitation would be imposed since monitoring is done on a monthly basis and long-term averages are not considered in establishing the limitation.

Consideration of acute standard as a basis for effluent limitation is strictly based on the premise that the flow is intermittent. The current treatment system employs flow equalization. However, it is not clear if flow from the treatment system continues for more than 4 days. Monitoring for the period of discharge will be required in the proposed permit. If it is established that discharge exists in excess of four days in any given event, then chronic water quality criteria will be considered in establishing effluent limitations

and the permit will be modified either during the proposed permit cycle or during permit renewal process for the next cycle.

Table 6: Applicable water quality criteria.

Temperature	18 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units with a human caused variation of 0.5 units within this range.
Copper	22 µg/L : $0.960 * e^{(0.9422[\text{LN}(\text{hardness})] - 1.464)}$
Lead	89 µg/L: $CF * e^{(1.273[\text{LN}(\text{hardness})] - 1.460)}$; $CF = 1.46203 - [(\text{LN}(\text{hardness}))(0.145712)]$
Zinc	147 µg/L : $0.978 * e^{(0.8473[\text{LN}(\text{hardness})] + 0.8604)}$
pentachlorophenol	9 µg/L : $e^{[1.005(\text{pH}) - 4.83]}$; based on a pH of 7
arsenic	360 µg/L
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Temperature and pH--

The boiler blowdown can be a source of thermal loading to Lincoln Avenue Ditch. However, since the boiler blowdown is generally mixed with storm water, the thermal loading to the Ditch may be some what reduced. A significant thermal loading is likely to be present during summer time when boiler blowdown is discharged in absence of storm water. However, the temperature impacts to the Ditch will be from thermal loading at the City outfall to the Lincoln Avenue Ditch. The discharge from LPI travels a certain distance in the City storm sewer before discharging to the Ditch. In the storm sewer the discharge may mix with other flows. Information on the temperature of the discharge at the City outfall as well as the temperature of the discharge at LPI is not available. Thus, monitoring for temperature will be required.

LPI adds Hydrochem, a chemical containing ten percent potassium hydroxide, to the boiler water. This would potentially increase the pH of the discharge. However, the treatment system consists of a pH correcting tank. A pH limitation of six to nine would be retained since this is a demonstrated categorical technology-based limitation imposed on nearly all NPDES permits. However, the water quality standard of 6.5 to 8.5 (with a 0.5 units allowed for human activities within this range) would still have to be met at the City outfall. The Lincoln Avenue Ditch reach in the vicinity of the City outfall is not on the water quality impaired list (303(d) list) for pH.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxics were determined to be present in the discharge: copper, lead, zinc, arsenic, pentachlorophenol, 1,1,1-trichloroethane, methylene chloride, and. acetone.

The concentration of arsenic is well below the aquatic water quality standard of 360 µg/L. Thus, no limitation will be imposed on arsenic. However, monitoring for arsenic will be required to obtain sufficient data that better reflects effluent concentrations.

In establishing the effluent limitation for copper, lead, zinc, and pentachlorophenol, the following factors were considered:

1. LPI currently discharges to the City of Tacoma storm sewer that runs along the Port of Tacoma Road in front of the facility. The drainage area for the City storm sewer is approximately 5 acres. LPI's portion of the drainage area that contributes flow to the on-site treatment system is 0.67 acres. This provides a dilution factor of 7.5 to 1 to the discharge at outfall 001. This dilution factor exists at the City outfall at Lincoln Avenue Ditch along the Port of Tacoma Road.
2. This dilution factor assumes that the background concentrations for these pollutants in the storm sewer is essentially zero. This may not be the case. Thus, monitoring for these pollutants would be required at the City outfall to ensure compliance with water quality standards. If the City Outfall is not compliant with water quality standards then effluent limitations may be changed accordingly with either a lesser dilution factor or no dilution factor. This would be accomplished either through a permit modification or during next permit renewal process.
3. The water quality standards for the discharge must be met at the City outfall at the Lincoln Avenue Ditch. Thus, with a dilution factor of 7.5 to 1, the effluent limitations for outfall 001 (end of treatment system) may be as follows:

Pollutant	Water quality standard	dilution factor	effluent limitation
Copper, µg/L	22	7.5	165
Lead, µg/L	89	7.5	667
Zinc, µg/L	147	7.5	1102
pentachlorophenol, µg/L	9	7.5	67

4. The effluent limitation should not exceed what the facility is currently achieving through implementation of best management practices and treatment system. The 99th percentile of effluent concentrations (rounded off to the nearest whole number) since January 1995 is shown below (also see Appendix C):

Pollutant	99 th percentile
Copper	50 µg/L
<u>Lead</u>	<u>100 µg/L</u>
Zinc	330 µg/L
pentachlorophenol	70 µg/L

5. Comparing the water quality based effluent limitation (using the available dilution factor) and what the treatment system can achieve as discussed above the 90th percentile values are more restrictive except for pentachlorophenol. The water quality based effluent limitation of 67 µg/L is fairly close to

70 µg/L and thus, a limit of 70 µg/L will be used for pentachlorophenol. As discussed earlier, a technology based limitation on PCP may be imposed in the future following evaluation of influent-effluent data on PCP for the carbon column.

Effluent limitations for copper, lead, zinc, and pentachlorophenol would be that shown in Table 7. At present no water quality based limitations for aquatic toxicity are available for 1,1,1-trichloroethane, methylene chloride and acetone.

The resultant water quality based effluent limits for aquatic life protection are as follows. Consideration of human health standards is addressed later on.

Table 7: Resultant water quality based effluent limitations

Pollutant	Effluent Limitation
Copper, µg/L	50 µg/L
Lead, µg/L	100 µg/L
Zinc, µg/L	330 µg/L
pentachlorophenol, µg/L	70 µg/L
pH	6 to 9

The Permittee may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

Metals criteria may also be adjusted using the water effects ratio approach established by USEPA, as generally guided by the procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or replaced.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity. Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment. Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

An effluent characterization for acute toxicity was conducted during the previous permit term using an obsolete fish acute toxicity test (WDOE 80-12). Thus, the proposed permit requires another effluent characterization for toxicity.

The discharge of industrial storm water from LPI is combined in the storm sewer with runoff from a much larger drainage area. The proportion of LPI's discharge to that from the total drainage area is approximately 1 to 7.5. The general permit for municipal storm water is the regulatory mechanism which will provide pollution controls for runoff from this area of which LPI is only a part. LPI has an individual NPDES permit because it is an industry with a point source discharge to a storm sewer which discharges to surface water.

Because LPI discharges substances with the potential to be toxic to aquatic life if discharged in excessive concentrations, the Department felt that it was necessary to establish in the last permit some reasonable controls on toxic pollutants discharged from the LPI facility and applied the chemical-specific water quality criteria for aquatic life protection to the metals known to be used and discharged by the facility. LPI accepted these requirements and implemented them. The point of compliance chosen for the water quality criteria was the LPI outfall to the storm sewer which in turn discharges to the Lincoln Avenue Ditch. Only the acute water quality criteria were considered in establishing the effluent limitations. This consideration was based on the fact that storm water discharge was intermittent and that the chronic toxicity standards for water quality are based on a four-day average.

In addition to evaluating the concentration of metals in the discharge in relation to the acute water quality criteria, the last permit required LPI to conduct WET testing in order to evaluate the potential impacts to aquatic life. Only acute WET tests were required. However, the method used for WET testing is no longer an approved method and may not be as sensitive as the current 96-hour acute toxicity test. The premise used for not considering chemical-specific chronic water quality criteria to discharges such as LPI's also affect the implementation of chronic WET to this facility. Because of the lack of information currently on how to interpret the results of chronic WET testing of the LPI discharges, the results of this testing cannot be used regulatorily in this permit. Until information is available on how to apply chronic WET to the LPI discharges, no further chronic WET testing will be required.

The point of compliance for acute WET in this permit will be considered to be the storm sewer outfall at the Lincoln Ditch. The lack of implementation information at this time prevents the application of the usual acute WET requirements to this discharge which include an acute WET limit set at the acute critical effluent concentration (ACEC). WAC 173-205-020 defines the ACEC in relation to a mixing zone established in accordance with WAC 173-201A-100. There is currently no information on how to establish a mixing zone under these circumstances meaning that no ACEC and no acute WET limit can be assigned. For the new acute WET characterization, the critical percent sample, equivalent to LPI's contribution to the flow in the storm sewer, must serve merely to trigger a requirement to submit a toxicity identification/ reduction evaluation (TI/RE) plan and implement it upon Department approval. The critical percent sample must be established prior to conducting the acute WET tests.

Submission of a TI/RE plan will be required for repeat significant toxicity at the critical percent sample defined above. Because the established regulatory approach for WET does not fit this situation for the reasons mentioned above, the TI/RE plan for this discharge may consider factors not applicable to other TI/RE plans:

- If the TI/RE can establish that the only substances contributing to acute WET are the metals or other pollutants already limited by the permit, then the chemical specific limits will be used in accordance with 40 CFR 122.44(d)(v) and WAC 173-205-040(1)(b) to limit the discharge of toxicity from the facility. The TI/RE in this case must also determine if these chemical-specific limits need to be reduced in order to protect aquatic life. The dilution provided by the storm sewer may be used in making this determination. If the TI/RE can establish the adequacy of the chemical-specific limits (either as they exist or appropriately reduced), then all acute WET testing requirements will cease.

- If the TI/RE determines that chemical-specific limits are not adequate for protecting aquatic life either because the worst-case concentrations of the metals are too high or because a previously unknown toxicant is discovered, then LPI will be required to develop and implement a plan for further source controls. In accordance with WAC 173-205-030(4), the acute WET characterization will be stopped and resumed at the time of completion of the implementation of the plan for toxicity source control.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the effluent is likely to have chemicals of concern for human health. The discharger's high priority status is based on knowledge of data or process information indicating regulated chemicals occur in the discharge, and that chemical is known or expected to be in the effluent.

Table 8 shows the applicable human health criteria for the discharge at LPI.

Table 8: Applicable human health criteria		
	For consumption of water and fish	For consumption of fish only
Arsenic	0.018 µg/L *	0.14 µg/L
pentachlorophenol	0.28 µg/L	8.2 µg/L
Methylene Chloride	4.7 µg/L	1600 µg/L
1,1,1-Trichloroethane	200 µg/L **	

* This criteria is based on inorganic fraction of arsenic only and is currently being revised by EPA

** For consumption of water only, from the National Primary Drinking Water Standards

Effluent concentrations for 1,1,1-Trichloroethane (see Figure 7) suggests that a maximum concentration of 18 µg/L was detected during the previous permit cycle. Thus, concentrations of 1,1,1-Trichloroethane are well below the criteria shown in Table 8 above. Effluent concentrations for arsenic, pentachlorophenol, and methylene chloride are all above the criteria shown in Table 8 for consumption of water and fish. The Department currently does not have any policy on how to implement the NTR standards for storm water. Thus, no effluent limitations would be imposed based on consideration of the National Toxics Rule for human health criteria at this time. However, monitoring for the constituents in Table 8 (except 1,1,1-Trichloroethane) would be required should a future policy be established. Monitoring for arsenic and methylene chloride will be required only in the final year of the permit cycle.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400). Since the discharge is to the storm sewer, the extent of the contribution of pollutants, if any, to the receiving water sediments by LPI is not clear at this time. If the Department determines in the future that there is a potential for violation of the Sediment Quality Standards, an order will be issued to require the Permittee

to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxics in the sediments as a result of LPI's discharge.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100). This Permittee has no known discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED November 25, 1992

Table 9 shows the proposed and existing effluent limitations for LPI.

Table 9: Comparison of proposed and existing effluent limitations

Parameter	Existing limits	Proposed Limits
Oil and Grease	15 mg/L	15 mg/L
pH	6 to 9	6 to 9
Copper	23.4 µg/L	50 µg/L
Lead	118.5 µg/L	100 µg/L
Zinc	150 µg/L	330 µg/L
Pentachlorophenol	----	70 µg/L

Changes in the limitations for copper, lead, and zinc reflect new changes made to the State Water Quality Standards since the issuance of the previous permit (in November 1992), available dilution and treatment system performance. This is addressed under the section on water quality based limitations.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for arsenic is additionally being required to further characterize the effluent. This pollutant could have a significant impact on the quality of the surface water.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-220-210).

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

SOLID WASTE PLAN

The Department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate of solid waste.

This proposed permit requires, under the authority of RCW 90.48.080, that the Permittee update the solid waste plan, as necessary, to prevent solid waste from causing pollution of the waters of the state. The plan must be submitted to the local permitting agency for approval, if necessary, and to the Department.

TREATMENT SYSTEM OPERATING PLAN

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system [40 CFR 122.41(e)] and WAC 173-220-150 (1)(g). An operation and maintenance manual will be submitted as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). It has been determined that the implementation of the procedures in the Treatment System Operating Plan is a reasonable measure to ensure compliance with the terms and limitations in the permit.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Conditions G7 and G8 relate to permit renewal and transfer. Condition G9 requires the Permittee to control its production in order to maintain compliance with its permit. Condition G10 prohibits the reintroduction of removed substances back into the effluent. Condition G11 states that the Department will modify or revoke and reissue the permit to conform to

more stringent toxic effluent standards or prohibitions. Condition G12 incorporates by reference all other requirements of 40 CFR 122.41 and 122.42. Condition G13 notifies the Permittee that additional monitoring requirements may be established by the Department. Condition G14 requires the payment of permit fees. Condition G15 describes the penalties for violating permit conditions.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this proposed permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on August 30, and September 6, 1998, in Tacoma News Tribune to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) in Tacoma News Tribune to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, Washington 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6280, or by writing to the address listed above.

This permit and fact sheet were written by Anise U. Ahmed.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of seven is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Responsible Corporate Officer-- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C—TECHNICAL CALCULATIONS

Effluent data since January 1995.

Date	Copper, ug/L	Lead, ug/L	Zinc, ug/L	PCP, ug/L
1/1/95	1	30	60	10
2/1/95	11	35	60	12.1
3/1/95	10	40	60	18.2
4/1/95	10	20	110	10
5/1/95	20	40	110	11.4
6/1/95	40	50	240	13.5
7/1/95	13	8	83	10
8/1/95	10	30	80	12.6
9/1/95	5	50	80	12.1
10/1/95	10	40	120	10
11/1/95	60	10	100	10
12/1/95	10	50	60	12
1/1/96	10	50	50	16
2/1/96	1	20	60	12.5
3/1/96	10	100	70	19.4
4/1/96	20	30	60	27.1
5/1/96	10	30	70	15.2
6/1/96	20	40	130	11
7/1/96	10	50	70	10
8/1/96	40	40	210	13
9/1/96	10	110	190	21.1
10/1/96	10	40	390	12.1
11/1/96	10	40	60	10
12/1/96	10	10	60	10
1/1/97	10	40	90	15
2/1/97	20	20	100	13.2
3/1/97	10	70	90	14.1
4/1/97	20	20	130	10
5/1/97	20	10	60	19.1
6/1/97	5	70	50	15.1
7/1/97	10	50	60	18.2
9/1/97	10	50	90	32
10/1/97	8	2	56	74
11/1/97	23	2	25	45
12/1/97	1	5	1	55
1/1/98	9	42	112	10
2/1/98	18	1	49	10
3/1/98	12	1	60	41
4/1/98	2	8	27	59.1
5/1/98	13	1	108	42
7/1/98	3	5	1	65
99 th percentile	52	106	330	70.4

**APPENDIX D—RESPONSE TO COMMENTS RECEIVED DURING PUBLIC COMMENT
PERIOD (for NPDES Permit No. WA0038679)**

The Department of Ecology (Ecology) has completed drafting the NPDES Permit for Lilyblad Petroleum, Inc. in Tacoma, Washington. Comments were accepted on the draft permit for a 30 day period. The public comment period ended on May 3, 1999.

Comment:

Ecology did not receive any specific comments on the draft permit and factsheet during the public comment period. However, a letter was received from the City of Tacoma regarding wastewater discharge from the on-site laboratory. The City recommended that the laboratory drain be connected to the sanitary sewer and that only minimum amounts of products and solvents generated from cleaning of the laboratory equipment be discharged.

Response:

The on-site laboratory does not have any immediate access to sanitary sewer. The wastewater from the laboratory currently goes to a sump where it is pumped to the on-site storm water treatment system. Ecology concurs that best management practices should be employed to minimize the discharge of products and solvents in the wastewater.

Action Taken:

The requirement for discharge of laboratory wastewater to the on-site storm water treatment system is specifically included in the permit Condition S1.